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U.S. Department of the Interior • U.S. Geological Survey

# MINERAL INDUSTRY SURVEYS

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## COBALT IN OCTOBER 1997

U.S. consumption of cobalt in January through October 1997 was 10% higher than consumption during the first 10 months of 1996, according to the U.S. Geological Survey. U.S. imports of cobalt metal and cobalt contained in chemicals during January through September 1997 were 24% higher than imports during the first 9 months of 1996. Exports of unwrought cobalt and cobalt contained in chemicals were 3% lower during January through September 1997 than exports during the same period in 1996. Trade data for October 1997 will be available in a subsequent issue.

### Note

With the exception of prices, all data in this report have been rounded to no more than three significant digits. Totals and percentages were calculated by using unrounded data.

### Update

On November 20, the Defense Logistics Agency (DLA) announced the results of its November 19 cobalt offer. Approximately 227 tons (500,000 pounds) of cobalt metal was available for sale on a sealed bid basis. The DLA awarded 249 tons (548,448 pounds) at a total value of \$10.1 million. Awards were made to the following companies: Glencore Ltd., Stamford, CT (176 tons); The Hall Chemical Co., Wickliffe, OH (11 tons); Phoenixx International Resources, Pittsburgh, PA (55 tons); and Voss Metals Co., Rockford, IL (7 tons).

On December 19, the DLA announced the results of its

December 17 cobalt offer. Approximately 227 tons (500,000 pounds) of cobalt metal was available for sale on a sealed bid basis. The DLA awarded 248 tons (547,433 pounds) at a total value of \$9.6 million. Awards were made to the following companies: The Hall Chemical Co., Wickliffe, OH (7 tons); ISK Magnetics, Inc., Bethlehem, PA (14 tons); OMG Americas, Westlake, OH (209 tons); Sogem-Afrimet, Inc., New York, NY (12 tons); and Voss Metals Co., Rockford, IL (8 tons).

The next cobalt offer will be on a sealed-bid basis. The sale of approximately 227 tons (500,000 pounds) of cobalt is scheduled for January 21, 1998. For further information on DLA's cobalt sales program, please contact June Olmsted, DLA's contracting officer for cobalt, at (703) 767-5492.

Price update, in dollars per pound of electrolytic cobalt (Source—Platt's Metals Week):

<u>Week ending</u>	<u>Price range</u>
November 21	25.50-26.50
November 28	25.25-26.30
December 5	25.00-26.20
December 12	25.25-26.25

### Monthly average

November  
25.39

TABLE 1  
U.S. REPORTED CONSUMPTION OF COBALT MATERIALS 1/

(Metric tons, contained cobalt)

Period	Metal 2/	Oxide and other chemical compounds 3/	Scrap	Total
1996:				
January-October r/	2,700	1,350	1,320	5,370
January-December 4/	3,240	1,610	1,660	6,500
Year 5/	3,640	1,710	1,670	7,010
1997:				
January	303	140	163	606
February	287	134	165	587
March	274	133	171	578
April	304	132	173	610
May	297	128	174	599
June	270	126	174	570
July	270	127	169	565
August	295	125	173	593
September	286 r/	130	175 r/	591 r/
October	311	139	174	623
January-October	2,900	1,310	1,710	5,920

r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes metal powder.

3/ Data may include other cobalt materials.

4/ Data based on monthly reports.

5/ Includes annual reports.

TABLE 2  
U.S. REPORTED CONSUMPTION OF COBALT, BY END USE 1/

(Metric tons, contained cobalt)

End use	1996			1997	
	January- October	January- December 2/	Year 3/	October	January- October
Steel:					
Stainless and heat resisting	32	38	38	3	32
Tool	82	95	95	11	90
Superalloys	2,350 r/	2,910	3,220	280	2,850
Alloys (excludes steels and superalloys):					
Magnetic alloys	571 r/	682	728	64	586
Welding materials (structural and hard-facing) 4/	222 r/	268	284	27	268
Other alloys 5/	38 r/	45	65	W	W
Cemented carbides 6/	612 r/	721	722	86	642
Chemical and ceramic uses:					
Catalysts	533 r/	638	652	49	502
Driers in paints or related usage	618 r/	733	733	70	597
Ground coat frit	136 r/	159	159	13	136
Pigments	W	W	191	W	W
Miscellaneous and unspecified 7/	180 r/	211	119	19	216
Total	5,370 r/	6,500	7,010	623	5,920

r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Miscellaneous and unspecified."

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Data based on monthly reports.

3/ Includes annual reports.

4/ Includes wear-resistant alloys.

5/ Includes nonferrous alloys.

6/ Includes diamond bit matrices, cemented and sintered carbides, and cast carbide dies or parts.

7/ Includes feed or nutritive additive, full-alloy steel, glass decolorizer, mill products made from metal powder, and data indicated by the symbol "W."

TABLE 3  
U.S. REPORTED STOCKS OF COBALT MATERIALS 1/

(Metric tons, contained cobalt)

Period	Industry 2/ Oxide and other chemical compounds 5/				U.S. Government, 3/ metal
	Metal 4/		Scrap	Total	
1996:					
October	288	275	111	675	18,900
November	292	280	114	685	18,800
December 6/	284	272	181	737	18,700
Yearend 7/	305	275	182	762	18,700
1997:					
January	337	281	101	719	18,500
February	303	269	92	665	18,400
March	325	251	118	694	18,300
April	370	252	88	710	17,900
May	382	239	81	702	17,800
June	365	241	81	688	17,800
July	389	240	90	719	17,800
August	323	240	89	652	17,600
September	340 r/	240	80 r/	661	17,500
October	339	242	80	661	17,400

r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Stocks reported by cobalt processors and consumers.

3/ Data from Defense Logistics Agency. Includes material committed for sale pending shipment.

4/ Includes metal powder.

5/ Data may include other cobalt materials.

6/ Data based on monthly reports.

7/ Includes annual reports.

TABLE 4  
U.S. IMPORTS FOR CONSUMPTION OF COBALT, BY COUNTRY 1/

(Kilograms, gross weight of material, except as noted)

Period and country of origin	Metals 2/		Oxides and hydroxides		Salts and compounds 3/		Total cobalt content for the month 5/	Cobalt content, year to date 5/ 6/
	Quantity	Value 4/	Quantity	Value 4/	Quantity	Value 4/		
1996:								
September	434,000	\$20,600,000	58,600	\$2,440,000	101,000	\$954,000	503,000	5,240,000
October	347,000	17,100,000	71,000	3,030,000	101,000	1,010,000	425,000	5,660,000
November	481,000	22,300,000	61,100	2,640,000	90,700	911,000	550,000	6,210,000
December	400,000	19,400,000	64,100	2,400,000	155,000	1,340,000	494,000	6,710,000
January-December	5,760,000	327,000,000	824,000	36,200,000	1,260,000	14,800,000	6,710,000	XX
1997:								
January	629,000 7/	28,400,000 7/	85,900	3,080,000	182,000 7/	1,470,000 7/	746,000	746,000
February	567,000	24,300,000	56,900 7/	1,690,000 7/	157,000	1,540,000	649,000	1,400,000
March	524,000 7/	22,800,000 7/	72,200	3,250,000	65,000 7/	519,000 7/	594,000	1,990,000
April	770,000	32,900,000	104,000	4,190,000	203,000	1,910,000	899,000	2,890,000
May	634,000	31,100,000	63,200 7/	2,100,000 7/	250,000	2,270,000	746,000	3,640,000
June	584,000 7/	28,800,000 7/	124,000	4,760,000	139,000	1,470,000	711,000	4,350,000
July	547,000 7/	26,000,000 7/	120,000	4,760,000	265,000	2,680,000	704,000	5,050,000
August	508,000	23,400,000	139,000	4,890,000	128,000	1,330,000	643,000	5,690,000
September:								
Australia	--	--	--	--	15 7/	6,780 7/	4	3,600
Belgium	5,130	373,000	48,700	1,960,000	--	--	40,200	281,000
Brazil	10,000	421,000	--	--	--	--	10,000	115,000
Canada	78,400	3,380,000	--	--	226	5,730	78,500	707,000
China	--	--	--	--	--	--	--	55
Finland	41,000	1,790,000	47,100	1,550,000	128,000	1,250,000	109,000	1,200,000
France	3,330	285,000	3,450	209,000	--	--	5,810	63,600
Germany	2,780	175,000	405	35,600	--	--	3,070	59,400
India	--	--	--	--	--	--	--	4
Japan	--	--	1,000	44,000	--	--	720	23,600
Mexico	--	--	--	--	--	--	--	1,680
Morocco	9,250	396,000	--	--	--	--	9,250	20,900
Netherlands	--	--	--	--	--	--	--	8,640
Norway	220,000	10,500,000	--	--	--	--	220,000	1,620,000
Russia	52,000	2,190,000	--	--	--	--	52,000	699,000
South Africa	70,800	2,210,000	--	--	2,170	28,500	71,400	97,100
Spain	--	--	--	--	--	--	--	16,500
United Kingdom	2,500	123,000	40,400	1,290,000	8,000	102,000	33,600	224,000
Zaire	77,800	3,570,000	--	--	--	--	77,800	432,000
Zambia	74,000	3,130,000	--	--	--	--	74,000	903,000
Total	647,000	28,500,000	141,000	5,090,000	138,000	1,390,000	785,000	6,480,000

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Unwrought cobalt, excluding alloys; includes cobalt cathode and cobalt metal powder.

3/ Includes cobalt sulfates, cobalt chlorides, cobalt carbonates, and cobalt acetates.

4/ Customs value.

5/ Estimated from gross weights.

6/ Year to date may include revisions to prior months.

7/ All or part of these data have been referred to the Bureau of the Census for verification.

Source: Bureau of the Census.

TABLE 5  
U.S. IMPORTS FOR CONSUMPTION OF ADDITIONAL COBALT MATERIALS, BY COUNTRY 1/

(Kilograms, gross weight of material, except as noted)

Period and country of origin	Unwrought cobalt alloys		Other cobalt: matte, waste and scrap 2/		Wrought cobalt and cobalt articles	
	Quantity	Value 3/	Quantity	Value 3/	Quantity	Value 3/
1996:						
September	2,500	\$237,000	14,900	\$765,000	12,500	\$878,000
October	483	34,100	47,900	644,000	17,500	1,020,000
November	17,500	946,000	20,400	552,000	9,680	714,000
December	3,560	207,000	55,300	2,270,000	15,300	1,100,000
January-December	60,500	3,790,000	566,000	11,700,000	178,000	11,500,000
1997:						
January	5,920	443,000	32,800 4/	1,070,000 4/	14,500	876,000
February	12,400	497,000	38,100 4/	1,280,000 4/	14,100	958,000
March	2,350	181,000	29,500 4/	1,170,000 4/	39,100	1,380,000
April	8,450	418,000	73,400	1,950,000	24,800	1,530,000
May	24,400	955,000	50,700 4/	1,320,000 4/	29,300	1,470,000
June	2,230	128,000	56,200 4/	1,840,000 4/	14,900	997,000
July	15,100	500,000	43,100 4/	1,260,000 4/	15,600	956,000
August	6,540 4/	293,000 4/	77,400 4/	3,860,000 4/	21,500	1,250,000
September:						
Belgium	2,040	69,000	20,100	133,000	--	--
Canada	--	--	4,930 4/	287,000 4/	357	59,600
Denmark	43	5,100	--	--	--	--
Finland	--	--	12,300 4/	738,000 4/	--	--
France	--	--	4,630 4/	36,400 4/	1,380	83,500
Germany	75	6,070	23,100 4/	307,000 4/	5,640	206,000
Japan	900	67,800	--	--	2,260	177,000
Sweden	25	1,710	--	--	--	--
Taiwan	--	--	10,700	41,900	--	--
United Kingdom	952	76,000	9,720	134,000	11,800	547,000
Total	4,030	226,000	85,400	1,680,000	21,400	1,070,000

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes other intermediate products of cobalt metallurgy; may include other cobalt-bearing materials from which cobalt is extracted, or from which cobalt-containing chemical compounds are manufactured.

3/ Customs value.

4/ All or part of these data have been referred to the Bureau of the Census for verification.

Source: Bureau of the Census.

TABLE 6  
U.S. EXPORTS OF COBALT MATERIALS 1/

(Kilograms, gross weight of material, except as noted)

Period	Unwrought cobalt, powders, matte, waste and scrap 2/		Oxides and hydroxides		Salts and compounds 3/		Total cobalt content for the month 5/	Cobalt content, year to date 5/ 6/
	Quantity	Value 4/	Quantity	Value 4/	Quantity	Value 4/		
1996:								
September	58,200	\$2,370,000	35,600	\$1,060,000	42,800	\$224,000	94,200	1,270,000
October	73,100	3,390,000	25,700	790,000	31,900	104,000	99,300	1,370,000
November	84,000	3,510,000	27,400	777,000	78,100	316,000	122,000	1,490,000
December	118,000	3,930,000	54,400	1,440,000	112,000	678,000	184,000	1,670,000
January-December	1,320,000	66,100,000	346,000	10,200,000	446,000	4,050,000	1,670,000	XX
1997:								
January	60,800	2,350,000	30,300	979,000	34,100 7/	149,000 7/	90,700	90,700
February	101,000	2,480,000	48,100 7/	1,160,000 7/	65,500 7/	234,000 7/	152,000	242,000
March	82,000	3,990,000	50,100	1,530,000	18,500	253,000	123,000	365,000
April	143,000	5,760,000	93,100 7/	2,140,000 7/	5,430	74,100	211,000	576,000
May	77,100	3,990,000	35,600 7/	802,000 7/	65,800	428,000	118,000	695,000
June	82,900	3,760,000	56,200 7/	1,660,000 7/	75,000 7/	246,000 7/	141,000	836,000
July	55,200	2,710,000	68,000 7/	1,610,000 7/	102,000 7/	520,000 7/	129,000	965,000
August	81,600	3,290,000	32,600 7/	595,000 7/	94,200	442,000	128,000	1,090,000
September	62,900	2,010,000	42,500	1,060,000	177,000	1,180,000	136,000	1,230,000

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ May include other intermediate products of cobalt metallurgy, and unwrought cobalt alloys.

3/ Cobalt acetates and cobalt chlorides.

4/ Free alongside ship (f.a.s.) value.

5/ Estimated from gross weights.

6/ Year to date may include revisions to prior months.

7/ All or part of these data have been referred to the Bureau of the Census for verification.

Source: Bureau of the Census.

TABLE 7  
U.S. EXPORTS OF WROUGHT COBALT, COBALT ORE, AND CONCENTRATES 1/

(Kilograms, gross weight of material, except as noted)

Period	Wrought cobalt and cobalt articles		Cobalt ore and concentrates	
	Quantity	Value 2/	Quantity	Value 2/
1996:				
September	31,000	\$1,780,000	56,200	\$2,250,000
October	20,600	1,420,000	--	--
November	108,000	2,610,000	8,790	370,000
December	88,900	4,080,000	--	--
January-December	532,000	23,600,000	154,000	4,560,000
1997:				
January	44,300	3,020,000	24,600 3/	1,000,000 3/
February	20,900	1,420,000	80,500 3/	750,000 3/
March	68,200	3,720,000	12,200 3/	145,000 3/
April	66,100	2,590,000	300 3/	7,390 3/
May	187,000	8,410,000	2,510 3/	56,500 3/
June	76,800	2,780,000	9,400 3/	651,000 3/
July	29,300	1,230,000	20,300 3/	716,000 3/
August	36,400	2,700,000	285 3/	33,500 3/
September	23,500	1,220,000	32,700 3/	282,000 3/

1/ Data are rounded to three significant digits.

2/ Free alongside ship (f.a.s.) value.

3/ All or part of these data have been referred to the Bureau of the Census for verification.

Source: Bureau of the Census.